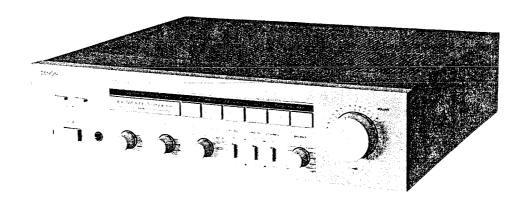
# DENON

FOR EUROPEAN, U.K., U.S.A., ASIA MODELS

Hi-Fi Pre-Main Amplifier

# SERVICE MANUAL MODEL PMA-737

# SOLID-STATE PRE MAIN AMPLIFIER



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## NIPPON COLUMBIA CO., LTD.

### **SPECIFICATIONS**

POWER AMPLIFIER SECTION

Rated Output Power:

Both channel drive (TUNER → SP OUT) 55 W + 55 W (8 ohm Load) 20 Hz to 20 kHz 65 W + 65 W (4 ohm Load) 20 Hz to 20 kHz

Except USA & Canada models

1 kHz (4 ohm Load) 60 W + 60 W (IEC Subject to change by temperature test) Both channel drive (TUNER → SP OUT)

60 Watts minimum rms per channel into 8-ohm with less than 0.05% total harmonic distortion from 20 Hz to 20 kHz.

USA & Canada models 65 W + 65 W (4-ohm Load) 20 Hz to 20 kHz at THD 0.05%

1 kHz (4-ohm Load) 85 W + 85 W (at THD 1.0%) (DIN) 0.05% at rated power (20 Hz  $\sim$  20 kHz, 8-ohm Load) 0.007% at -3 dB power (20 Hz  $\sim$  20 kHz, 8-ohm Load)

Intermodulation Distortion: 7 kHz/60 Hz: 1/4 Below 0.005%

150 mV

(at amplitude output equivalent to rated output)

5 Hz  $\sim$  80 kHz (IHF THD 0.1%) Output Band Width: 4 Hz  $\sim$  150 kHz  $^{+0}_{-3}$  dB (at 1 W output)

Transmission Characteristic:

**Total Harmonic Distortion:** 

Input Sensitivity:

Input Impedance: Output Impedance: **Output Terminals:** 

30 kohm 0.1 ohm (1 kHz)

A or B Load 4 ~ 16 ohm Speaker: A + B Load 8 ~ 16 ohm

Headphone/Stereo Headphone

**EQUALIZER AMPLIFIER SECTION** 

Equalizer Amplifier Output (REC OUT Terminal):

Maximum Output: 10 V (at 47 kohm load)

Rated Output: 150 mV

Total Harmonic Wave Distortion: Below 0.002%

(at 1 kHz, 8 V output)

Input Sensitivity/Input Impedance:

**PHONO** MM 2.5 mV 47 kohm 200 μV 100 ohm MC 150 mV 30 kohm

DAD., VIDEO/AUX, TAPE 150 mV 30 kohm PHONO (MC) Within  $\pm$  0.3 dB (20 Hz  $\sim$  100 kHz)

**RIAA Deviation:** 

**OVERALL CHARACTERISTICS** SN Ratio (IHF A Network):

MM 86 dB **PHONO** 

(input terminals short-circuited for 2.5 mV input)

MC 70 dB

(input terminals short-circuited for 250  $\mu$ V input)

TUNER, TAPE, DAD, VIDEO/AUX 106 dB

**BASS** 

(input terminals short-circuited) 100 Hz ± 8 dB

Tone Control Adjustable Range:

TREBLE 10 kHz ± 8 dB Low frequency

100 Hz + 7 dB

Loudness Characteristics:

High frequency 10 kHz + 6 dB SWITCHED x 2, 100 W (Total) UNSWITCHED x 1, 250 W

AC OUTLETS:

(For U.S.A. Canada and Asia)

POWER SOURCE:

U.S.A. and Canada AC 120 V, 60 Hz,

Germany and France AC 220 V, 50 Hz, U.K. and Australia AC 240 V, 50 Hz

Asia AC 110/120/220/240 V, 50/60 Hz (Multiple) POWER CONSUMPTION: 160 W (U.S.A.) 150 W (IEC) 310 VA (CSA)

140 W (Multiple) 400 W (Maximum output)

**DIMENSIONS:** 

WEIGHT:

 $434 \text{ mm}(W) \times 112 \text{ mm}(H) \times 393 \text{ mm}(D)$ 

(including rubber feed, control knobs, and terminals)

8.7 kg

NOTE: The following codes correspond to the appropriate models.

E1 for Asia, E2 for Europe, E3 for U.S.A., EC for Canada and EK for U.K.

This Service Manual is prepared based on E2.

<sup>\*</sup> Design and specifications are subject to change, for improvement, without prior notice.

### CONTROLS AND THEIR DESCRIPTION

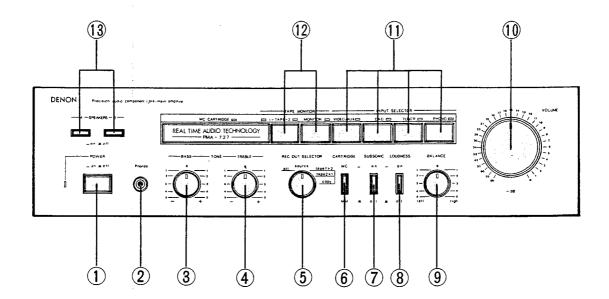
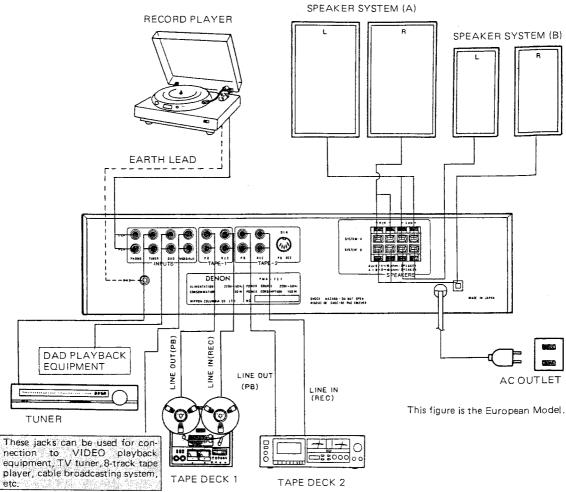


Fig. 1

- POWER & LED Indicator (Power Switch & LED Indicator)
- PHONES (Head Phone Jack)
- BASS (BASS Control Knob)
- TREBLE (TREBLE Control Knob)
- REC OUT SELECTOR (Recording out Changeover —— сору ● off, ● source, ● tape-1 ▶ 2, ● tape-2 ▶ 1
- (6) CARTRIDGE (Cartridge Changeover Switch) ▲ MC, ▲ MM
- SUBSONIC (Subsonic Filter Switch)

- LOUDNESS (Loudness Switch)
- BALANCE (Balance Control Knob)
- VOLUME (Main Volume Control Knob)
- INPUT SELECTOR (Input Changeover Switch) • VIDEO/AUX
- Phono,tuner, DAD,
- TAPE MONITOR (Tape Monitor Switch) • 1-TAPE-2, • MONITOR
- SPEAKERS (Speaker Changeover Switch) • system-A, • system-B

## CONNECTIONS



## Make Connections with Caution

- Do not connect Power cord to AC outlet until all connections completed.
- Distinguish Left and Right. Be sure connect L to L, and R to R.
- Insert the Plugs snugly. Improper connections may invite noise.
- AC outlets of the unit accept Audio equipment only: do not connect hair dryer etc. to the outlets.
- Do not tie Pin plug with Power cord or lay it along power transformer: it may invite hum and noise.
- "PHONO" input terminal is very highly sensitive. Be sure connect Pin cord to it or may induce hum from the Speakers.

## For USA, CANADA and ASIA model only

### AC OUTLETS

AC OUTLETS of the Unit accept Tuner, Record Player, Tape Deck etc. which are used with the unit. SWITCHED (100W max):

Power is turned on-off by the Power Switch.

## UNSWITCHED (250W max):

Always alive independent of Power Switch.

FOR LINE VOLTAGE PROVIDED MODEL, PLEASE REFER FOLLOWING INSTRUCTION.

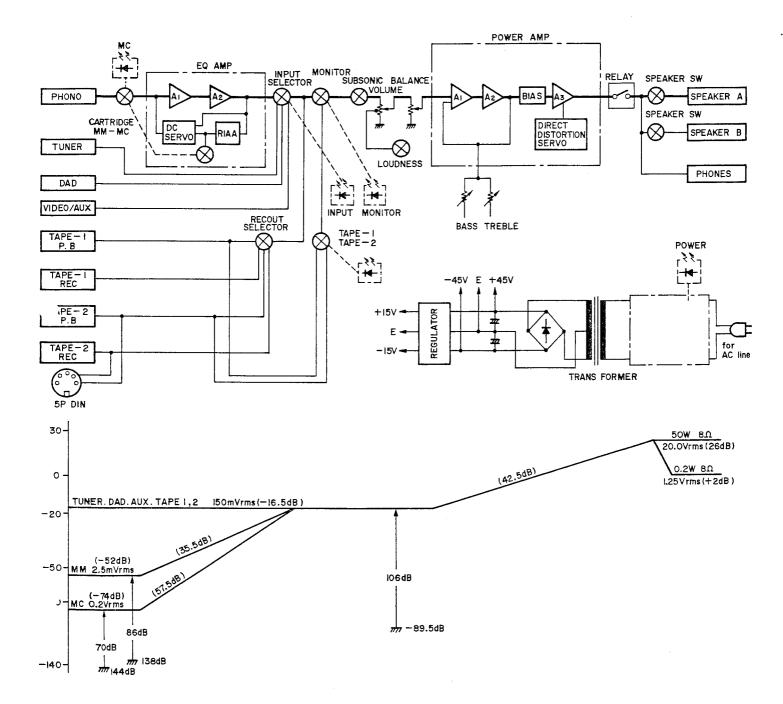
- LINE VOLTAGE (Voltage changeover switch) ..... (For ASIA model only)
  - \* It is possible to change the voltage by the customer to turn the VOLTAGE SELECTOR KNOB on the back panel for appropriate voltage using by a screw driver.
  - \* Do not twist the VOLTAGE SELECTOR KNOB by abnormal force that may damage it.
  - \* If the voltage change is not smoothly made, please ask for the qualified service personnel.



Back Panel F

Fig. 2

## BLOCK, LEVEL DIAGRAM



## METHOD OF ADJUSTMENTS

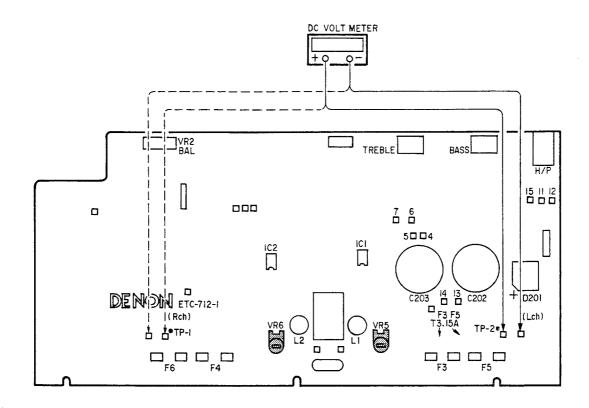


Fig. 5

## **ADJUSTMENT**

## IDLING CURRENT (Fig. 5)

### SETUP

- 1. Lay the unit at an ordinary position away from a direct current from a cooler or fan. Do the adjustment at a temperature between 15°C and 30°C.
- 2. Set controls as follows.

POWER SWITCH → off ( L )

VOLUME CONTROL  $\rightarrow$  fully counterclockwise. ( $\infty$ )

SPEAKER Terminals  $\rightarrow$  open: do not connect the speakers, dummy load etc.

## Adjustment

- 1. Remove Top cover and turn VR5 (Lch) and VR6 (Rch) of ETC0712B (TONE & POWER Unit) fully counterclockwise. And then connect DC Voltmeter to Test point (Lch TP2, Rch TP1).
- 2. Connect Power cord to AC outlet, and turn Power Switch "on" ( \_ ). Within 10 seconds turn VR5 and VR6 clockwise so that the DC voltmeter reads

 $1 \pm 0.5 \text{ mVDC}$ 

3. Then after 10  $\sim$  15 minutes warmup adjust VR5 and VR6 so that the DC Voltmeter reads 16  $\pm$  2 mVDC

## ETC0711 INPUT & EQ. UNIT

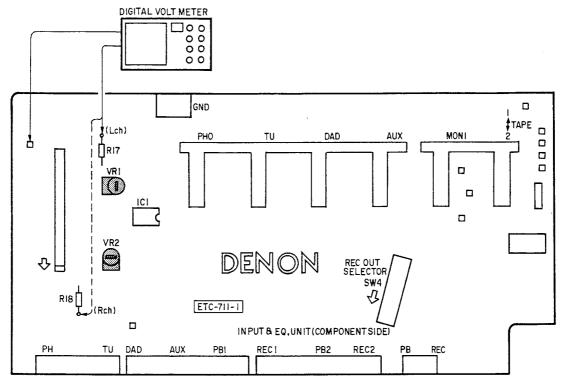


Fig. 6

## PHONO BALANCE (Fig. 6)

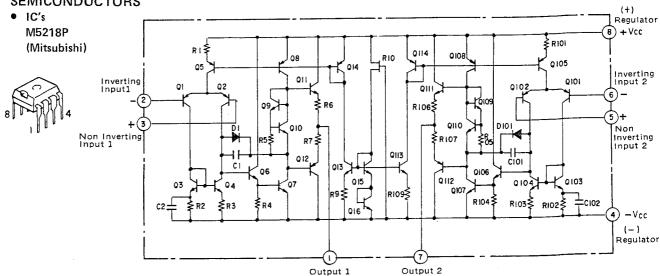
### Setup

- 1. Insert short-pin to "PHONO" input terminal.
- 2. Connect Digital Voltmeter (0.01  $\simeq$  1 mVDC measurable) to "Test pin".
- 3. Connect Digital Voltmeter to Test point (Lch TP: R17, Rch TP: R18).
- 4. Set REC OUT SELECTOR to "source", INPUT SELECTOR to "PHONO" and Cartridge Switch to "MM" position, and turn Volume Control fully counterclockwise.

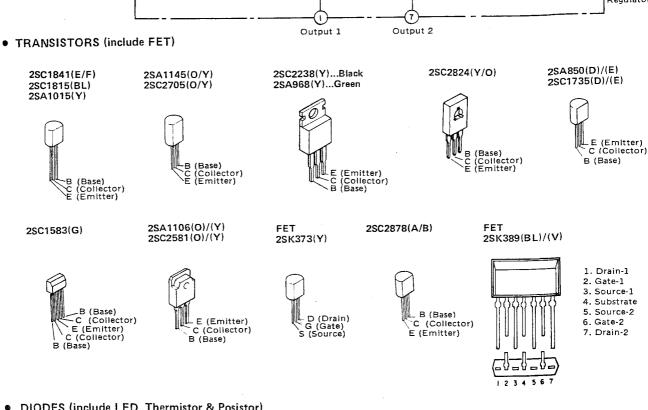
## Adjustment (Be sure to set REC OUT SELECTOR Switch to "source")

- 1. Turn Power switch "on ( 🕳 )" and after about 2 minutes do the adjustment as follows.
  - Adjust VR1 (100 $\Omega$  semi-fixed resistor) so that the Lch Digital Voltmeter reads below 0 VDC  $\pm 0.5$  mVDC.
  - Adjust VR2 (100 $\Omega$  semi-fixed resistor) so that the Rch Digital Voltmeter reads below 0 VDC  $\pm$ 0.5 mVDC.

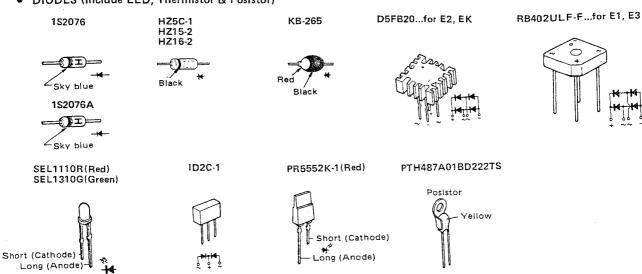
### **SEMICONDUCTORS**



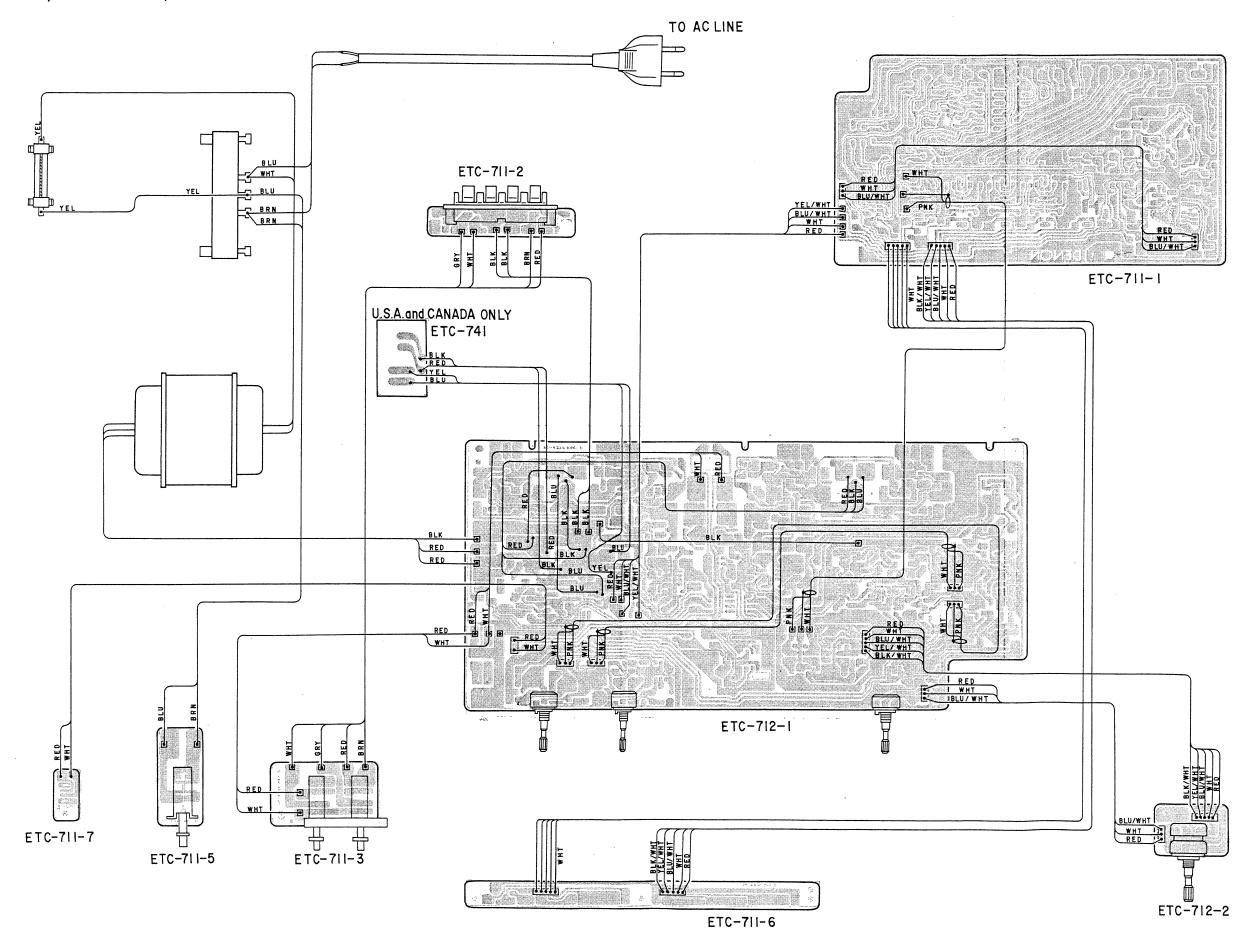
是一种的一种,但是一种,我们也是一种的一种,我们也是一种的人,我们也是一个人,我们也是一个人,我们也不是一个人,我们也是一个人,我们也是一个人,我们也是一个人,



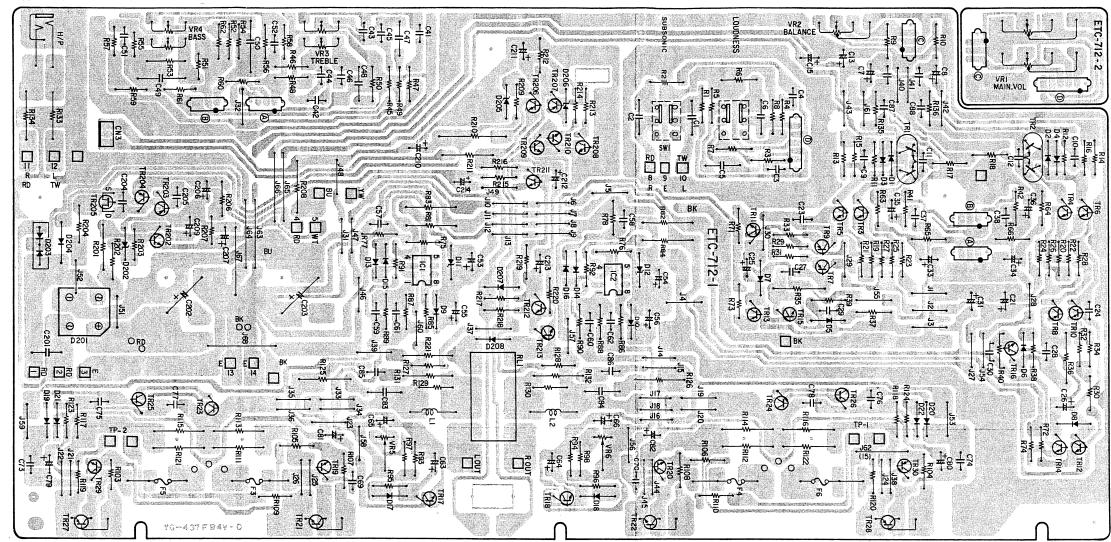
### • DIODES (include LED, Thermistor & Posistor)



## CONNECTION DIAGRAM (This figure is the specifications of E2.)



## PRINTED WIRING BOARD PATTERNS AND PARTS LIST ETC0712B TONE & POWER UNIT



## ETC0712C TONE & POWER UNIT for E3 (Same as ETC0712B except the followings.)

Ref. No.	Part No.	Part Name & Descriptions		
	SEMICONDUCTOR			
D201	2760349009	RB402ULF-F (CHANGE)		
		RESISTORS		
R009, 010	2412092002	1k ohm ±5% 1/4W CARBON (CHANGE)		
R111, ~116	2442013080	0.22 ohm ±5% 1W METAL OXIDE (N. B) (CHANGE)		
R121, 122	2442013080	0.22 ohm ±5% 1W METAL OXIDE (N. B) (CHANGE)		
	CAPACITORS			
C011, 012	2533645008	560pF ±5% 50V CERAMIC (CHANGE)		
C305, 306	2533635005	220pF ±5% 50V CERAMIC (DELETE)		
C307, 308	2533645008	560pF ±5% 50V CERAMIC (DELETE)		

Ref.	Part No.	Part Name & Des	criptions
C311, 312	2531026001	0.047μF +80,-20% 5	OV CERAMIC (DELETE)
	0-	THER PARTS	
F003 ~006	2061039089	FUSE 3.15(A)	(CHANGE)
R231, 232 (J61, J42)	2090008120	JUMPER (P=10mm)	(CHANGE)

## ETC0712D TONE & POWER UNIT for E1 (Same as ETC0712B except the followings.)

Ref. No.	Part No.	Part Name & Descriptions
	SEMIC	CONDUCTORS
D201	2760349009	RB402ULF-F (CHANGE)
	R	ESISTOR
R009,	2412092002	1k ohm ±5% 1/4W CARBON
010		(CHANGE)
	CAP	PACITORS
C011, 012	2533645008	560pF ±5% 50V CERAMIC (CHANGE)
C305, 306	2533635005	220pF ±5% 50V CERAMIC (DELETE)
C307, 308	2533645008	560pF ±5% 50V CERAMIC (DELETE)
C311, 312	2531026001	0.047µF +80,—20% 50V CERAMIC (DELETE)
	отн	ER PARTS
F003 ~006	2061035009	FUSE 3.15A(T) (CHANGE)
R231, 232 (J61, J42)	2090008120	JUMPER (P=10mm) (CHANGE)

## ETC0712F TONE & POWER UNIT for EK (Same as ETC0712B except the followings.)

Ref. No.	Part No.	Part Name & Descriptions
R009, 010	2412092002	1k ohm ±5% 1/4W CARBON (CHANGE)
	(	CAPACITORS
C011, 012 C305, 306 C307, 308 C311, 312	2533645008 2533635005 2533645008 2531026001	560pF ±5% 50 V CERAMIC (CHANGE) 220pF ±5% 50 V CERAMIC (DELETE) 560pF ±5% 50 V CERAMIC (DELETE) 0.047μF +80,-20% 50 V CERAMIC (DELETE)
	0	THER PARTS
R231, 232 (J61, J42)	2090008120	JUMPER (P=10mm) (CHANGE)

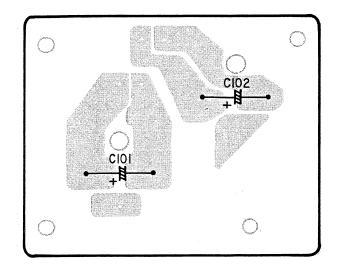
## ETC0712B TONE & POWER UNIT PARTS LIST for E2.

Ref. No.	Part No.	Part Name 8	Descriptions
SEMICONDUCTORS			
IC001, 002	2630257001	M5218P MIT	SUBISHI IC
TR001,	2730181006	2SC1583(G)	TRANSISTOR
TR003 ~006	2730235020	2SC1841(E/F)	TRANSISTOR
TR007 ~010	2710168007	2SA1145(O/Y)	TRANSISTOR
TR011, 012	2730281003	2SC2705(O/Y)	TRANSISTOR
TR013, 014	2710168007	2SA1145(O/Y)	
TR015, 016		2SC2705(O/Y)	
TR017,	2730198015	2SC1815(BL)	TRANSISTOR
TR019,		2SC2238(Y)	TRANSISTOR
TR023 ~026	2710102005	2SA1015(Y)	TRANSISTOR
TR029, 030 TR202	2710104003 2730163040	2SA968(Y) 2SC1735(D)/(E)	TRANSISTOR
TR202	2710102005	2SC1735(D)/(E) 2SA1015(Y)	TRANSISTOR
TR203	2710102005	2SA1015(1) 2SA850(D)/(E)	
	2750042002	1	
TR205		2SK373(Y)	FET
TR206	2730236029	2SC2824(Y/O)	TRANSISTOR
TR207	2710102005	2SA1015(Y)	TRANSISTOR
TR208 ~210	2730198015	2SC1815(BL)	TRANSISTOR
TR211	2730253015	2SC2878(A)/(B)	TRANSISTOR
TR212	2730198015	2SC1815(BL)	TRANSISTOR
TR213	2730235020	2SC1841(E/F)	TRANSISTOR
D005, 006	2760049008	1S2076	DIODE
D007, 008	2760216019	KB-265	DIODE
D009 ~012	2760253001	HZ15-2	ZENER
D013 ~018	2760049008	1S2076	DIODE
D201	2760356005	D5FB20	DIODE
D202	2760256008	HZ-16-2	ZENER
D203	2760151006	1D2C-1	DIODE
D204	2760057016	V06C	DIODE
D205	2760256008	HZ-16-2	ZENER
D206	2760236031	HZ5C-1	ZENER
D208	2760049011	1S2076A	DIODE
RES	SISTORS (not inc	clude Carbon Film ±	5%, 1/4W Type)
R007, 008	2420203003	1	% 1/4W BON COMPOSIT
R023, 024	2412314036	1	1/4W BON (N.B)
R025 ~028	2412314023	470 ohm ±5%	1/4W BON (N.B)
R029, 030	2412314007	100 ohm ±5%	1/4W IBON (N.B)
R035, 036	2440055024	15k ohm ±5%	1W AL OXIDE(N.B)
R037 ~040	2412321045	220 ohm ±5%	1/4W IBON (N.B)
R071	2412321061		1/4W (BON (N.B)
~074		U/A	IU.DI III.DI

E2.		
Ref. No.	Part No.	Part Name & Descriptions
R075,	2412321003	1k ohm ±5% 1/4W
076 R081	2440049027	CARBON (N.B) 4.7k ohm ±5% 1W
~084 R103,	2412321032	METAL OXIDE (N.B) 4.7 ohm ±5% 1/4W
104		CARBON (N.B)
R105, 106	2412314007	100 ohm ±5% 1/4W CARBON (N, B)
R107, 108	2412321032	4.7 ohm ±5% 1/4W CARBON (N. B)
R111	2442013093	0.33 ohm ±5% 1W
~116 R121,	2442013093	METAL OXIDE (N. B) 0.33 ohm ±5% 1W
122 R125,	2440017020	METAL OXIDE (N. B) 10 ohm ±5% 1W
126 R133,	2440030023	METAL OXIDE (N. B) 120 ohm ±5% 1W
134 R201	2440039024	METAL OXIDE (N. B) 680 ohm ±5% 1W
Bana	2410201002	METAL OXIDE (N. B)
R202 <b>R204</b>	2410201002	4.7k ohm ±5% 1/2W CARBON 680 ohm ±5% 1W
R208	2440037026	METAL OXIDE (N. B) 470 ohm ±5% 1W
R209	2410205008	METAL OXIDE (N. B) 6.8k ohm ±5% 1/2W CARBON
R210	2440094027	470 ohm ±5% 2W  METAL OXIDE (N. B)
R211	2440043023	1.5k ohm ±5% 1W METAL OXIDE (N. B)
R223, 224	2412321032	4.7 ohm ±5% 1/4W CARBON (N.B)
R221	2440037026	470 ohm ±5% 1W METAL OXIDE (N.B)
CAPA	CITORS (not incl	ude Ceramic ±5%, ±10%, 50V Type)
C001,	2561030067	0.18μF ±5% 100V METALIZED
002 C005,	2551083008	0.082μF±10% 50V PLASTIC FILM
006 C007,	2544146004	1μF 50V ELECTROLYTIC
008 C009,	2551120000	0.001μF ±5% 50V PLASTIC FILM
010 C013	2544146004	1μF 50V ELECTROLYTIC
~015 C021,	2544181001	1μF ±20% 100V ELECTROLYTIC
C023,	2534277006	22pF ±0.25pF 500V CERAMIC
024 C025,	2544181001	1μF ±20% 100V ELECTROLYTIC
026 C027,	2554079048	0.01μF ±5% 100V PLASTIC FILM
028 C031,	2544181001	1μF ±20% 100V ELECTROLYTIC
C033,	2544127007	220μF 6.3V ELECTROLYTIC
034 C035,	2544132005	10μF 16V ELECTROLYTIC
036 C041,	2551121009	0.0068μF±5% 50V PLASTIC FILM
042 C045,	2551120013	0.0012μF ±5% 50V PLASTIC FILM
046 C047,	2551122011	0.056µF ±5% 50V PLASTIC FILM
048 C049,	2551122095	0.27μF ±5% 50V PLASTIC FILM
050 C051,	2551121096	0.039μF ±5% 50V PLASTIC FILM
052		

Ref. No.	Part No.	Part Name & Descriptions
C053	2544153000	47μF 50V ELECTROLYTIC
~056 C063, 064	2544146004	1μF 50V ELECTROLYTIC
C065, 066	2544181001	1μF ±20% 100V ELECTROLYTIC
C069, 070	2534285001	47pF ±5% 500V CERAMIC
C073, 074	2534285001	47pF ±5% 500V CERAMIC
C079 ~082	2544181001	1μF ±20% 100V ELECTROLYTIC
C083, 084	2551084007	0.1μF ±10% 50V PLASTIC FILM
C201	2531053003	0.01µF +100,-0% 500V CERAMIC
C202, 203	2546067000	8200μF 56V ELECTROLYTIC
C206, 207	2544146004	1μF 50V ELECTROLYTIC
C209	2544153000	47μF 50V ELECTROLYTIC
C210	2544059007	100µF 63V ELECTROLTYIC
C211 C212	2544146004 2544161034	1μF 50V ELECTROLYTIC 330μF 6.3V ELECTROLYTIC
C212	2544129005	$47\mu$ F 10V ELECTROLYTIC
C214	2544060067	3.3 <sub>\mu</sub> F 100V ELECTROLYTIC
C311, 312	2531026001	0.047μF +80,-20% 50V CERAMIC
COILS, RELAY		
L001,	2350007007	INDUCTOR 1µH
002 RL001	2140041008	RELAY
VARIABLE RESISTORS, SWITCH		
VR001	2110425007	VARIABLE RESISTOR 100k ohm MAIN
∨R002	2110198004	VARIABLE RESISTOR 250k ohm BALANCE
VR003	2110309107	VARIABLE RESISTOR 50k ohm TREBLE
VR004	2110309110	VARIABLE RESISTOR 100k ohm BASS
VR005 VR006	2116025087	SEMI FIXED RESISTOR 4.7k ohm
SW001	2124483006	2P PUSH SWITCH LOUD/SUB SONIC
	0	THER PARTS
	2221061208	P.W. BOARD
	2090008120	JUMPER P=10mm USED 62
	EP-5667H2	TERMINAL (WRAPPING PIN)
	2090008162	USED 23 JUMPER P=20mm USED 6
	2090008102	JUMPER P=15mm USED 1
F003 ~006	2061015074	FUSE 3.15A USED 4
000	2020022008	FUSE HOLDER USED 8
	2048047007	H/P JACK
	2030170005	1P CONTACT
	2050190036	3P NH CONNECTOR BASE
	2050185038	3P WIRE HOLDER USED 6
	2050185054 4450033005	5P WIRE HOLDER USED 2 WIRE CLAMP BAND USED 4
	7-55555005	MILE OF THE PARTY OF THE

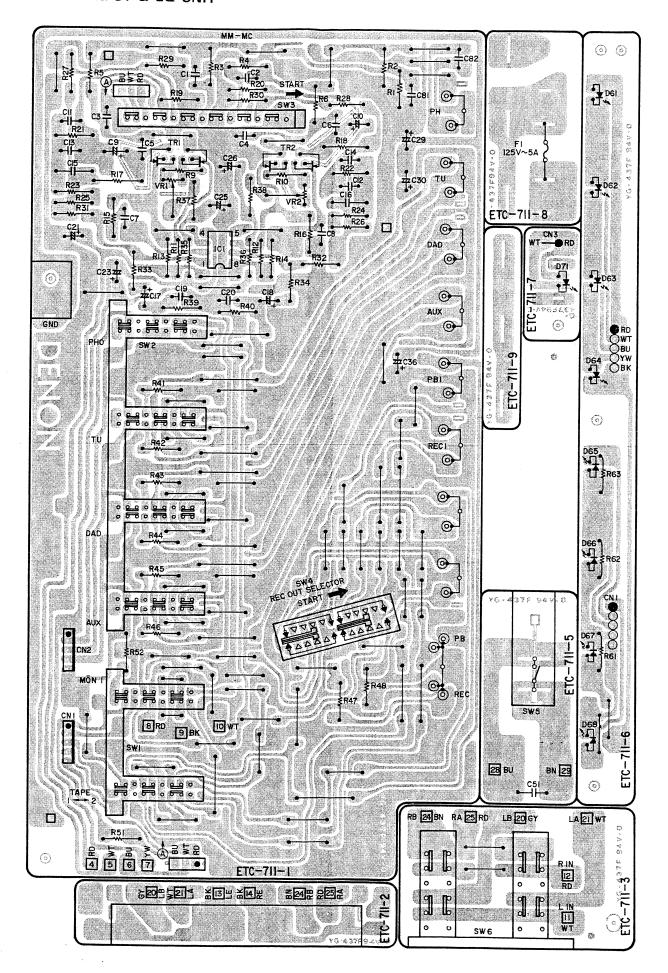
## ETC0741 C-UNIT for E3 only



## ETC0741 C-UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
		CAPACITORS
C101, 102	2546089004	8200μF 56V ELECTROLYTIC
OTHER PARTS		
	2221089002 EP-5667H3	P.W. BOARD TERMINAL (WRAPPING PIN) USED 4

## ETC0711 INPUT & EQ UNIT



## ETC0711 INPUT & EQ UNIT PARTS LIST for E2.

Ref.	Part No.	Part Name & Descriptions	
No.	<u> </u>	ICONDUCTORS	
	1	I	
IC001	2630257001	M5218P MITSUBISHI IC	
TR001,	2750045009	2SK389(BL)/(V) FET	
D061 ~064	3939052003	SEL1310G GREEN LED	
D065 ~067	3939051004	SEL1110R RED LED	
D068	3939052003	SEL1310G GREEN LED	
D071	3939154008	PR5552K-1 RED LED	
RES	ISTORS (not incl	ude Carbon Film ±5%, 1/4W Type)	
R017, 018	2420203003	10M ohm ±10% 1/4W CARBON COMPOSIT	
R035, 036	2412370041	2k ohm ±5% 1/4W CARBON (N.B)	
CAPA	CITORS (not incl	ude Ceramic ±5%, ±10%, 50V Type)	
C001,	2531024003	0.01μF +80,-20% 50V CERAMIC	
002 C007, 008	2551120084	0.0047μF±5% 50V PLASTIC FILM	
C009, 010	2549011024	10μF 50V ELECTROLYTIC	
C011, 012	2551120013	0.0012μF ±5% 50V PLASTIC FILM	
C013, 014	2551121041	0.015μF ±5% 50V PLASTIC FILM	
C015, 016	2551122011	0.056μF ±5% 50V PLASTIC FILM	
C017, 018	2544164015	10μF 25V ELECTROLYTIC	
C019, 020	2551120068	0.0033μF ±5% 50V PLASTIC FILM	
C021, 023, 036	2544146004	1μF 50V ELECTROLYTIC	
C025, 026	2544135002	47μF 16V ELECTROLYTIC	
C029, 030	2544146004	1μF 50V ELECTROLYTIC	
C051 C301, 302	2538003014 2531026001	0.0047μF ±20% 400 V CERAMIC 0.047μF +80,-20% 50 V CERAMIC	
<u> </u>	VARIABLE RESISTORS		
VR001, 002	2116025016	SEMI FIXED RESISTOR 100 ohm	
	SV	VITCHES	
SW001			
SW001 SW002 SW003	2124488001 2124487002 2124485004	2P PUSH SWITCH TAPE MONITOR  4P PUSH SWITCH INPUT SEL.  SLIDE SWITCH (6-2) REMOTE	
SW004	2124187001	MM/MC SLIDE SWITCH (4-4) REMOTE	
D1410 = =	04044745	REC OUT	
SW005 SW006	2124154063 2124486003	POWER SWITCH 2P PUSH SWITCH SP	
344000	2124400003	2P PUSH SWITCH SP	

Part No.   Part Name & Descriptions	Ref.		D . N
2221060 P.W. BOARD 2090008120 JUMPER P=10mm USED 60 TERMINAL (WRAPPING PIN) USED 24  L001, 2350009018 INDUCTOR 2.2μH  2090008146 JUMPER WIRE P=5mm USED 2 2090008104 JUMPER WIRE P=15mm USED 14 2050185038 3P WIRE HOLDER USED 2 2050136032 5P CONNECTOR BASE 2050190052 4140240001 EARTH PLATE 1220109007 4410412200 2048059008 2050151004 2050150005 4P CONNECTOR BASE 2050150005 4P CONNECTOR BASE 2050152003 2034185083 3P CONNECTOR BASE USED 2			
2090008120		OT:	HER PARTS
(J7,J5)  2090008146 2090008104 JUMPER WIRE P=5mm USED 2 2050185038 3P WIRE HOLDER USED 2 2050190052 4140240001 1220109007 4410412200 2048059008 2050151004 2050152003 2034185083 JUMPER WIRE P=5mm USED 2 3P WIRE HOLDER USED 2 4P CONNECTOR BASE 4P CONNECTOR BASE 4D NJACK (5P) 4D NJACK (5P) 4D NJACK (5P) 4D CONNECTOR BASE		2090008120 EP-5667H2	JUMPER P=10mm USED 60 TERMINAL (WRAPPING PIN) USED 24
		2090008104 2050185038 2050136032 2050190052 4140240001 1220109007 4410412200 2048059008 2050151004 2050150005 2050152003 2034185083	JUMPER WIRE P=15mm USED 14 3P WIRE HOLDER USED 2 5P CONNECTOR BASE 5P NH CONNECTOR BASE EARTH PLATE BLIND SHEET LED HOLDER DIN JACK (5P) 8P PUSH TERMINAL FOR SP. 4P CONNECTOR BASE 6P CONNECTOR BASE 3P CONNECTOR CORD

## ETC0711B INPUT & EQ. UNIT PARTS LIST for E3 (Same as ETC0711 except the followings.)

Γ	T	T
Ref. No.	Part No.	Part Name & Descriptions
		CAPACITORS
C001, 002	2531024003	0.01µF +80,-20% 50V CERAMIC (DELETE)
C003, 004	2533635005	220pF ±5% 50V CERAMIC (CHANGE)
C051	2568019007	0.01μF ±20% 125V METALIZED (CHANGE)
C061, ~064	2531009002	0.0068µF±10% 50V CERAMIC (DELETE)
C081, 082	2533635005	220pF ±5% 50V CERAMIC (DELETE)
C083 ~092	2533627000	100pF ±5% 50V CERAMIC (DELETE)
C301, 302	2531026001	0.047µF +80,-20% 50V CERAMIC (DELETE)
C303, 304	2533645008	560pF ±5% 50V CERAMIC (DELETE)
C309, 310	2531005006	0.0015µF ±10% 50V CERAMIC (DELETE)

Ref. No.	Part No.	Part Name & Descriptions		
	SWITCH			
SW005	2124154034	PUSH SWITH	(CHANGE)	
OTHER PARTS				
L001, 002 (J7,J5)	2048059008 EP-5667H2 EP-5870 2090008120	DIN JACK (5P) TERMINAL (WRAPP FUSE HOLDER JUMPER P=10mm	ING PIN) (ADD) (ADD)	

## ETC0711D INPUT & EQ. UNIT PARTS LIST for E1. (Same as ETC0711 except the followings.)

Ref. No.	Part No.	Part Name & Descriptions			
	CAPACITORS				
C001, 002	2531024003	0.01µF +80,-20% 50V CERAMIC (DELETE)			
COO3, OO4	2533635005	220pF ±5% 50V CERAMIC (CHANGE)			
C061 ~064	2531009002	0.0068μF ±10% 50V CERAMIC (DELETE)			
C081, 082	2533635005	220pF ±5% 50V CERAMIC (DELETE)			
CO83 ~092	2533627000	100pF ±5% 50V CERAMIC (DELETE)			
C301, 302	2531026001	0.047µF +80,-20% 50V CERAMIC (DELETE)			

Ref. No.	Part No.	Part Name & Descriptions
C303, 304 C309, 310	2533645008 2531005006	560pF ±5% 50∨ CERAMIC (DELETE) 0.0015µF ±10% 50∨ CERAMIC (DELETE)
	EP-5667H2 2048059008 EP-5870	THER PARTS  TERMINAL (WRAPPING PIN) (ADD) DIN JACK (5P) (DELETE) FUSE HOLDER (ADD)
L001, 002 (J7,J5)	2090008120	JUMPER P=10mm (CHANGE)

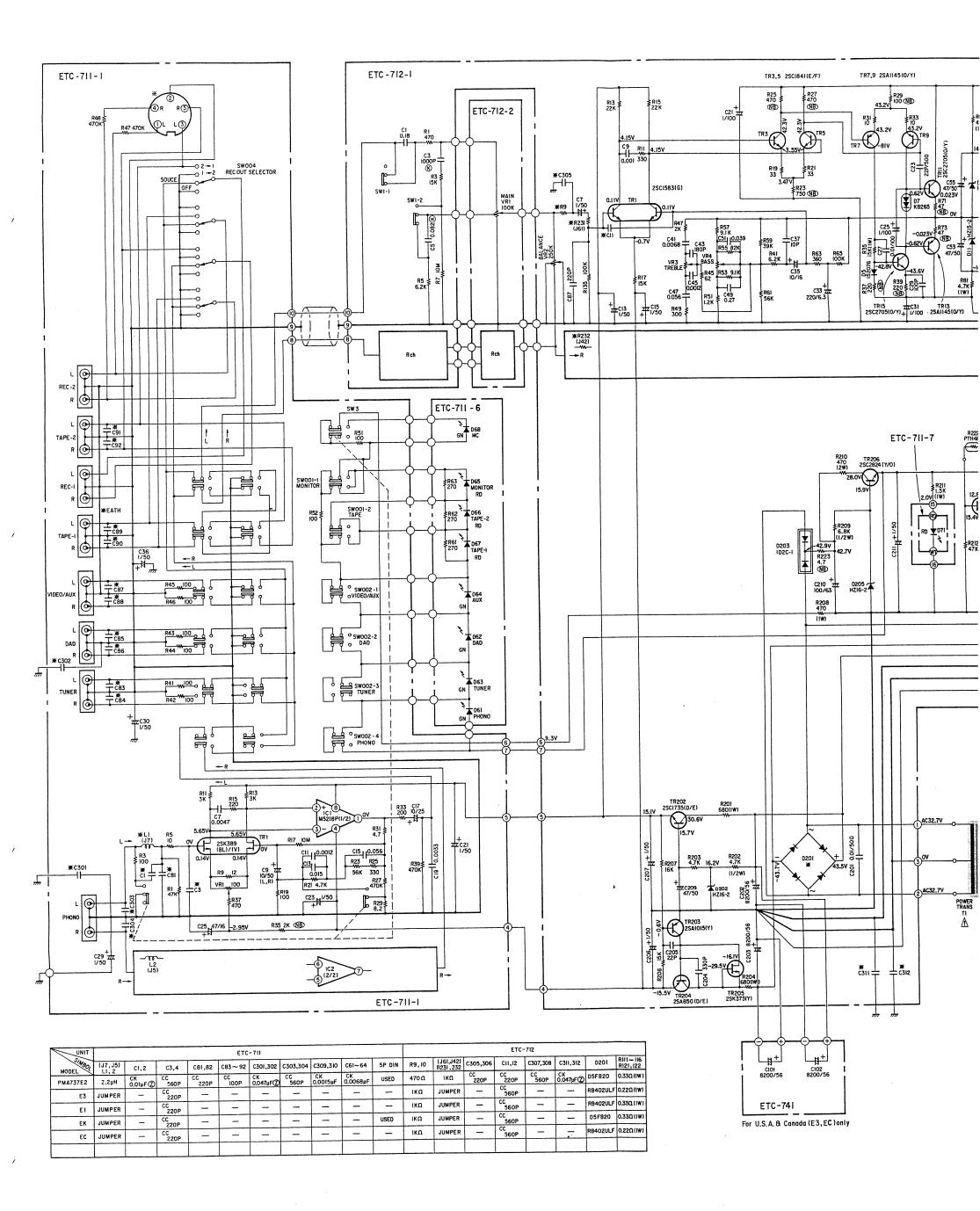
## ETC0711F INPUT & EQ. UNIT PARTS LIST for EK (Same as ETC0711 except the followings.)

Ref. No.	Part No.	Part Name & Descriptions		
	CAPACITORS			
C001,	2531024003	0.01µF +80,-20% 50V CERAMIC (DELETE)		
COO3, OO4	2533635005	220pF ±5% 50V CERAMIC (CHANGE)		
C061 ~064	2531009002	0.0068µF ±10% 50V CERAMIC (DELETE)		
CO81, O82	2533635005	220pF ±5% 50V CERAMIC (DELETE)		
CO83 ~O92	2533627000	100pF ±5% 50V CERAMIC (DELETE)		

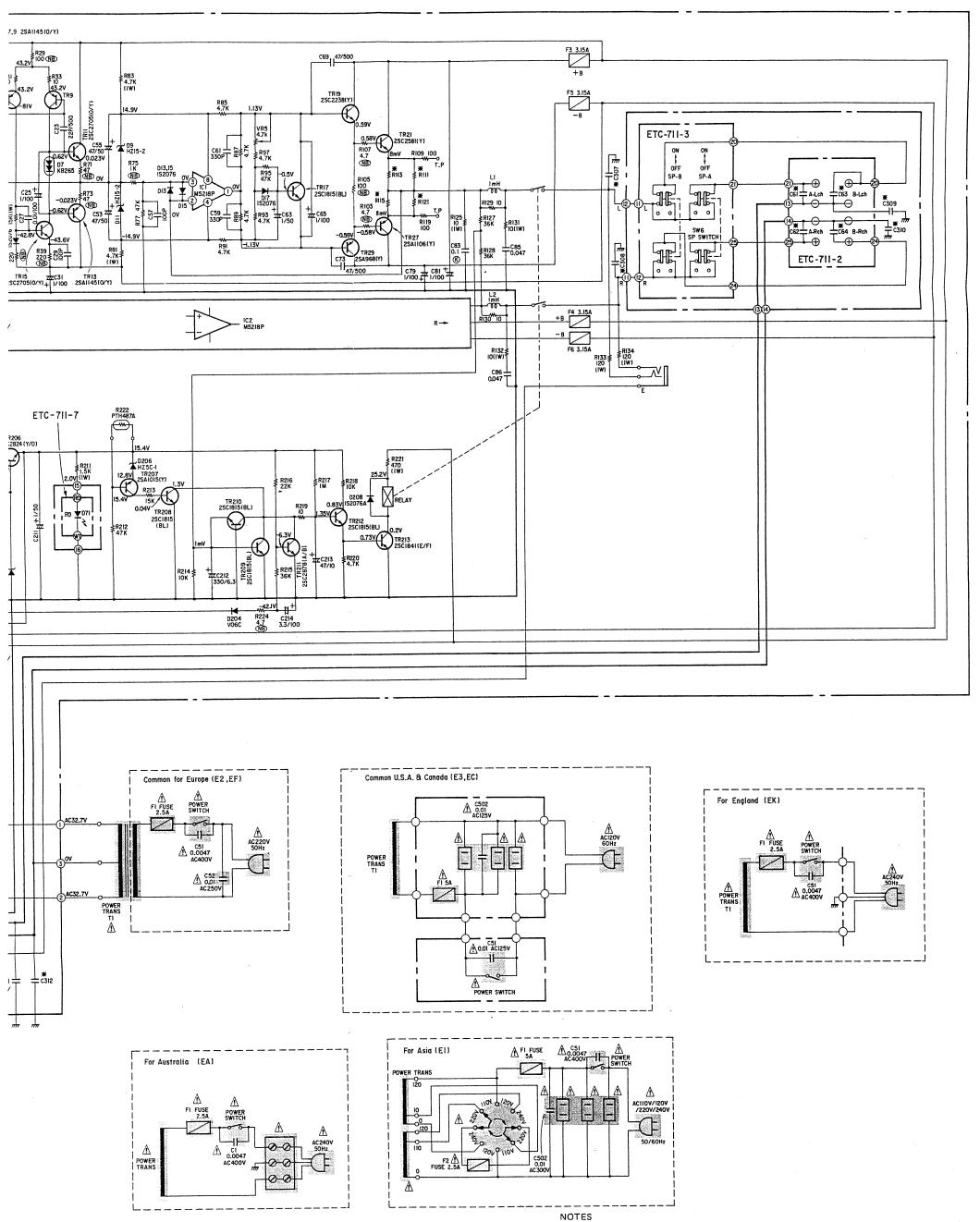
Ref. No.	Part No.	Part Name & Descriptions
C301, 302 C303,	2531026001 2533645008	0.047µF +80,-20% 50V CERAMIC (DELETE) 560pF ±10% 50V CERAMIC
304 C309, 310	2531005006	(DELETE) 0.0015µF±10% 50V CERAMIC (DELETE)
	0	THER PARTS
L001, 002 (J7,J5)	2090008120	JUMPER P=10mm (CHANGE)

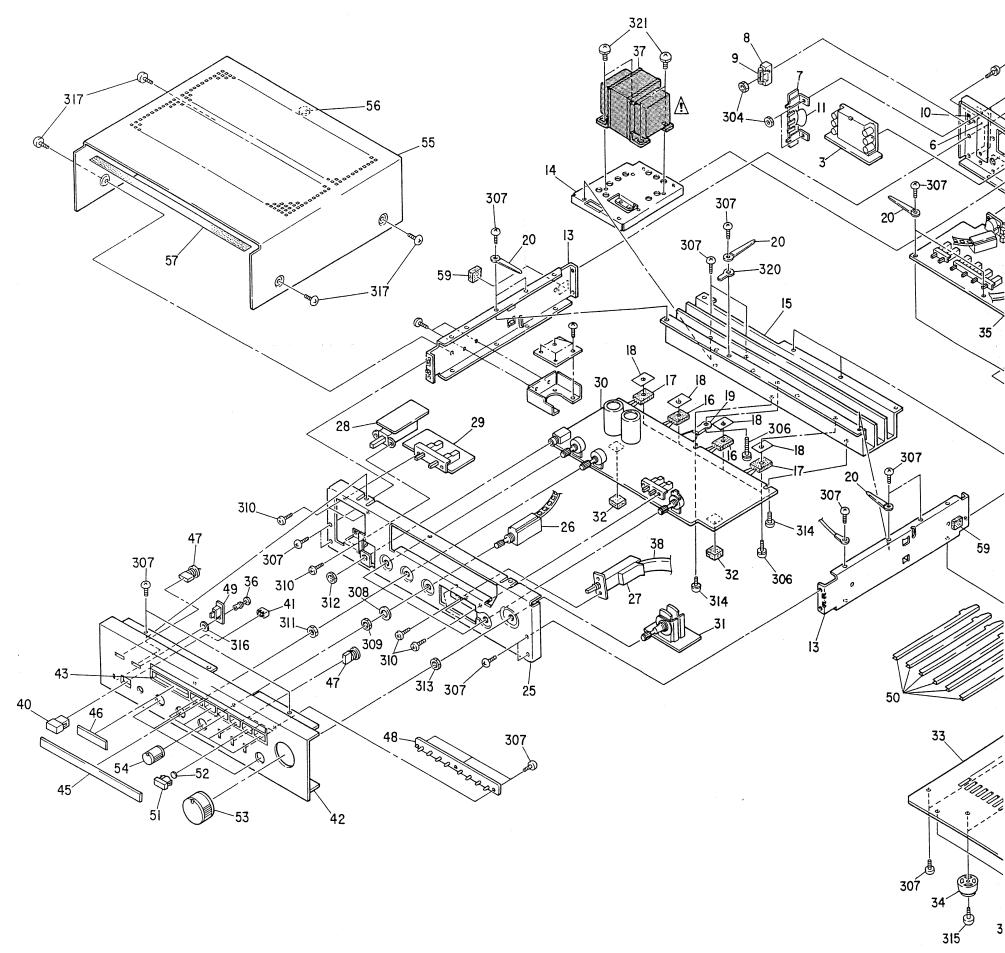
## ADDENDUM LIST (Ref. number 100 or older onto in the EXPLODED VIEW.)

Ref.	Ref. Part Name & Descriptions		Part No.		
No.	Part Name & Descriptions	E3 for U.S.A.	EK for U.K.	E1 for Asia	
1	BACK PANEL	1050603003	1050601102	1050609007	
3	SP TERMINAL UNIT	ETC0711B2	ETC0711F2	ETC0711D2	
Δ4	AC CORD	2062021009	2062020000	2006031026	
₫ 5	CORD BUSH	4450020005	MD-2982H	MD-3802	
6	INSULATING SHEET	_	4150088004		
7	7P W TERMINAL	-	2050089008	-	
8	FUSE HOLDER		2020013101	2020013101	
1 1 €	FUSE	_	2061015032	2061015032 (2.5A)	
4.0	FUOT / ADEL		(2.5A) 5130654017	(2.5A) 5130654017	
10 & 11	FUSE LABEL CAPACITOR	2568019007	5130034017	2568003000	
12	FTZ LABEL	-	_	_	
15	RADIATOR	4170226118	4170226105	4170226105	
28	POWER SWITCH UNIT	ETC0711B5	ETC0711F5	ETC0711D5	
29	SPEAKER SWITCH UNIT	ETC0711B3	ETC0711F3	ETC0711D3	
30	TONE & POWER UNIT	ETC0712C	ETC0712F	ETC0712D	
31	VOLUME UNIT	ETC0712C2	ETC0712F2	ETC0712D2	
35	INPUT & EQ. UNIT	ETC0711B	ETC0711F	ETC0711D	
₫37	POWER TRANS	2335486009	2335468001	2335466003	
48	INPUT LED UNIT	ETC0711B6	ETC0711F6 ETC0711F7	ETC0711D6 ETC0711D7	
49	POWER LED UNIT	ETC0711B7 (1020148019)	1020148019	1020148019	
55 57	TOP COVER SPACER	(1220069008)	1220069008	1220069008	
57	SPACEN	(1220003000)	122000000	722000000	
A 100	AC OUTLET (3P)	2033922001	_	2033922001	
<b>∆101</b>	AC OUTLET UNIT	ETC0711B8	-	ETC0711D8	
<b>∆</b> 102	AC OUTLET UNIT	ETC0711B9	-	ETC0711D9	
103	DANGEROUS MARK	5138266009	· —	-	
104	SERIAL NO. PLATE	5130675096	_	-	
105	RIVET	4770126016	-	-	
106	EARTH LABEL	_	5130140000	-	
107 108	VOLTAGE LABEL BLIND SHEET	_	5130362008 5130348006	_	
108	CAUTION SHEET	_	5130348006		
£110	VOLTAGE SEL. SWITCH		-	2120186006	
111	PRESET LABEL	_	-	5150290008	
112	FUSE LABEL	5130607080	_	-	
113	FUSE	2061023079	_	2061026005	
114	FUSE LAVEL	5130607006	_		
115	P.C.B. BRACKET	4121669009	_	_	
116	C-UNIT	ETC0741	_	·	
117	PLATE (L)	4410452008	_	_	
118 119	PLATE (R)   SPACER	4410453007 1220069040		_	
''3	of AGEN	1220003040		_	
	SCREWS and NUTS (in	ncluded Washers)			
303	PAN SCREW WITH S.W 3x8 (BK)	_	4700042005	4700042005	
304	NUT M3	-	4756006008	_	
318	TOOTH WASHER φ3	_	4753001051	_	
319	TOOTH WASHER φ4	_	4753100004	_	
320	PACKING & A	CCESSORIES		_	
d.		Т	E111717000	E111212000	
e.	INST. MANUAL SAFETY INSTRUCTION	5111247003	5111213008	5111213008	
f.	WARRANTY IN ENVELOPE	5111041005		5158053001	
g.	IMPORTANT LABEL	-	5130372001	-	
			1		



Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.





## EXPLODED VIEW OF CHASSIS AND CABINET PARTS LIST

Notes: 1. See addendum list below for the parts with asterisk (\*) on the Ref. No. and the other parts not included in the list. See 2. This list is prepared based on E2 & Gold Version.

Ref. No.	Part No.	Part Name & Descriptions
*1	1050601102	BACK PANEL
2	2050071016	TERMINAL ASS'Y
*3	ETC07112	SP. TERMINAL UNIT
* A4	2062002031	AC CORD
* A.5	4450020005	CORD BUSH
*6	4150088004	INSULATING SHEET
*7	2050089008	7P.W TERMINAL
*8	2020013101	FUSE HOLDER
A *9	2061015032	FUSE 2.5A
<b>**10</b>	5130654017	FUSE LABEL
*A·11	2568023006	METALIZED CAP. 0.01 µF/250V
*12	5130716023	FTZ LABEL
13	4110352204	SIDE CHASSIS
14	4110428002	TRANS CHASSIS ASS'Y
*15	4170226105	RADIATOR
16	2730273011	TRANSISTOR 2SC2581(O)/(Y)
17	2710160018	TRANSISTOR 2SA1106(O)/(Y)
18	4150234007	INSULATING SHEET
19	2760289004	POSISTOR PTH487A01BD222TS
20	EP-4772	CORD HOLDER USED 4
21	4121610003	HOLD BRACKET (6 GANG)
22	4630299009	SPRING USED 6
23	4410425006	SHEET (6 GANG)
24	4770210003	PUSH RIVET (L=4.5) USED 7
1	l .	

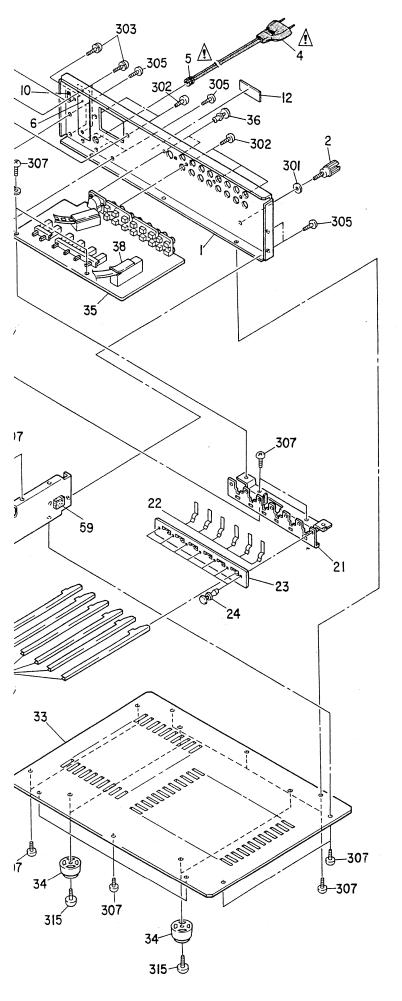
1 1741110 E.G.		
Ref. No.	Part No.	Part Name & Descriptions
25	4110417301	FRONT CHASSIS ASS'Y
26	2120222012	ROTARY REMOTE
27	2124484005	1P PUSH REMOTE
*28	ETC07115	POWER SW UNIT
*29	ETC07113	SPEAKER SW UNIT
*30	ETC0712B	TONE & POWER UNIT
*31	ETC0712B2	VOLUME UNIT
32	4610121016	CUSHION
33	1050325200	BOTTOM COVER
34	1048001002	FOOT USED 4
*35	ETC0711	INPUT & EQ. UNIT
36	4770096007	PUSH RIVET (L=5.5) USED 3
*A:37	2335462007	POWER TRANS
38	4350052018	FLEXIBLE SLIDER
<b>*</b> 39	4450033005	WIRE CLAMP BAND USED 15
40	1130515008	PUSH KNOB (A) FOR POWER
41	1140056007	FLEXIBLE RING
42	1441222200	FRONT PANEL ASS'Y
43	1460682203	WINDOW PANEL
44		
45	1430361004	WINDOW
46	1449001009	ESC PLATE
47	1130513204	PUSH KNOB (B) ASS'Y USED 5
*48	ETC07116	INPUT LED UNIT
*49	ETC07117	POWER LED UNIT

CONNECTING BRACKET PUSH KNOB (C) FOR INPUT SPACER KNOB (A) FOR MAIN KNOB (B) FOR BAL. SEL. BASS.
TREBLE USED 4 TOP COVER STOPPER SPACER CUSHION (A)

	Ref. No.	Part No
		SCREW
	301	47700180
-	302	47303540
	*303	47000420
	*304	47560060
	305	47700641
	306	47000120
	307	47303540
	308	-
	309	-
	310	47113030
	311	-
	312	-
	313	-
	314	47000260
	315	47304550
	316	47702310
	317	47348010
	*320	2050003
	321	47180050

Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.







## CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

"SERIAL NO.\_\_\_\_\_\_
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

NIPPON COLUMBIA CO., LTD.

No. 14-14, 4-CHOME AKASAKA, MINATO-KU, TOKYO 107 JAPAN TEL: 03-584-8111

TLX: JAPANOLA J22591

CABLE: NIPPONCOLUMBIA TOKYO

luded in the list. See Page 14.

Ref. No.	Part No.	Part Name & Descriptions	Q'ty		
	SCREWS and NUTS (included Washers)				
301	4770018001	WASHER (P-87)	1		
302	4730354035	TAPPING SCREW (2) 3×8	5		
*303	4700042005	PAN SCREW WITH SW 3x8 (BK)	3		
*304	4756006008	NUT M3	3		
305	4770064107	FIXING SCREW	7		
306	4700012022	PAN SCREW WITH W.SPW	5		
		3×12			
307	4730354019	TAPPING SCREW (2) 3x8	31		
308	_	WASHER φ9 (SP)	1		
309	_	NUT M9 (SP)	1		
310	4711303018	PAN SCREW 3×6	8		
311	_	NUT M7 (SP)	3		
312	_	NUT M12 (SP)	1		
313	_	NUT M8 (SP)	1		
314	4700026005	TAPPING SCREW WITH W3x8	2		
315	4730455015	TAPPING SCREW (2) 4×10	4		
316	4770231008	WASHER φ4 (S)	1		
317	4734801005	TAPPING SCREW (TRUS)	4		
		4x8			
*320	2050003107	3T LUG	1		
321	4718005005	TAPPING SCREW WITH W. SPW 4×10	4		

Ref. No.	Part No.	Part Name & Descriptions
PACKI	NG & ACCESSOF	RIES (not include EXPLODED VIEW)
a. b. c. *d.	5040064001 5030262101 5010916024 5111213008	CABINET SHEET CUSHION CARTON CASE INST. MANUAL

The BLACK VERSION is equal to the GOLD VERSION except for the following items.

Ref. No.	Part No.	Part Name & Descriptions
40	1130515024	PUSH KNOB (A) FOR POWER
42	1441222213	FRONT PANEL ASS'Y
43	1460682229	WINDOW PANEL
45	1430361017	WINDOW
46	1449001012	ESC PLATE
47	1130513220	PUSH KNOB (B) ASS'Y
51	1130579112	PUSH KNOB (C) FOR INPUT
53	1120449016	KNOB (A) FOR MAIN
54	1120450018	KNOB (B) FOR BAL, SEL, BASS,
İ		TREBLE
55	1020148022	TOP COVER
SCREWS and NUTS		
317	4734454038	TAPPING SCREW (2) 4×8
PACKING & ACCESSORIES		
a	5040052013	CABINET COVER
c	5010915083	CARTON CASE



## CAUTION

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The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

"SERIAL NO.\_\_\_\_\_\_
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

NIPPON COLUMBIA CO., LTD.

No. 14-14, 4-CHOME AKASAKA, MINATO-KU, TOKYO 107 JAPAN

TEL: 03-584-8111 TLX: JAPANOLA J22591

CABLE: NIPPONCOLUMBIA TOKYO